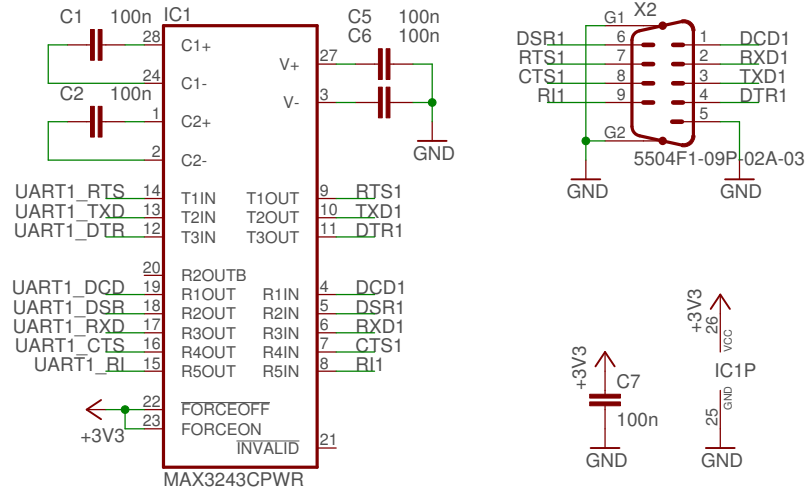
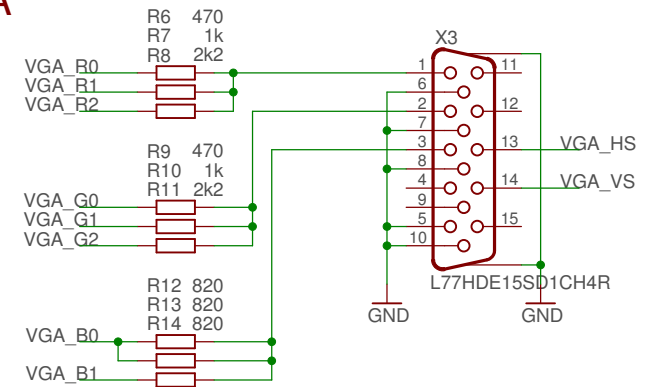


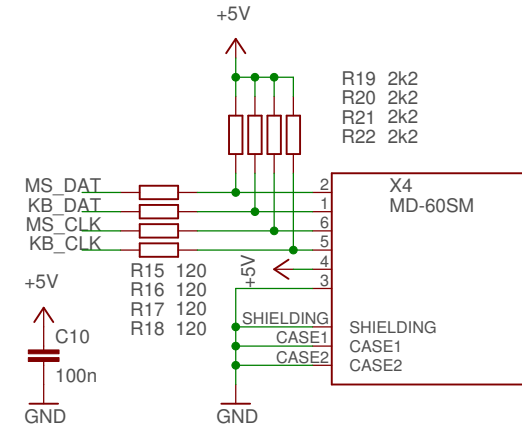
RS232



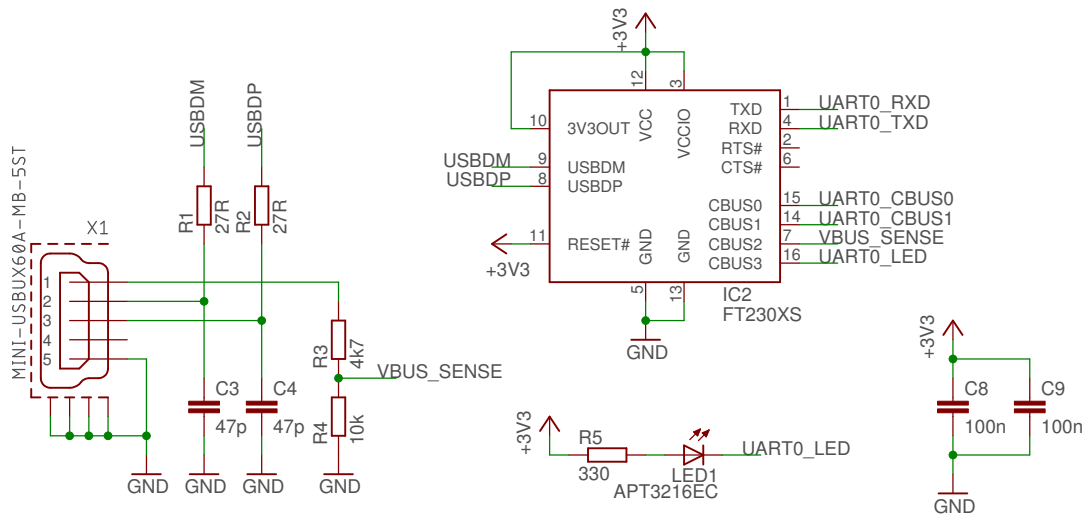
VGA



PS2



Debug UART

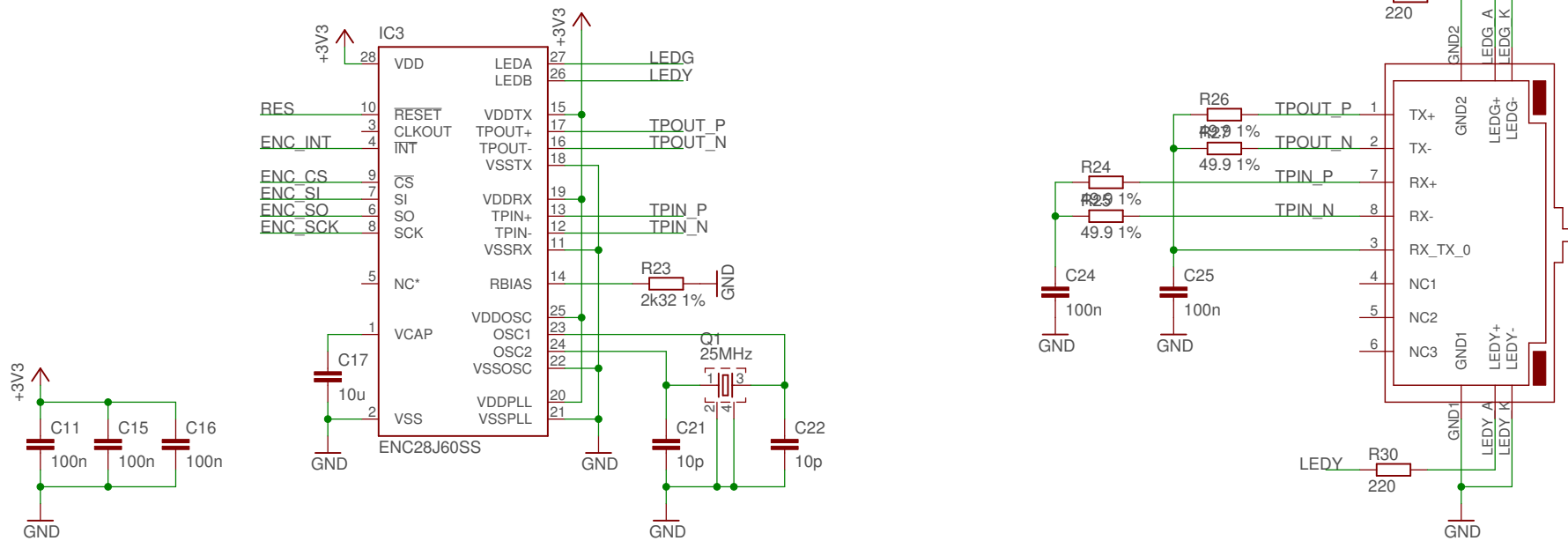


MARK-II board

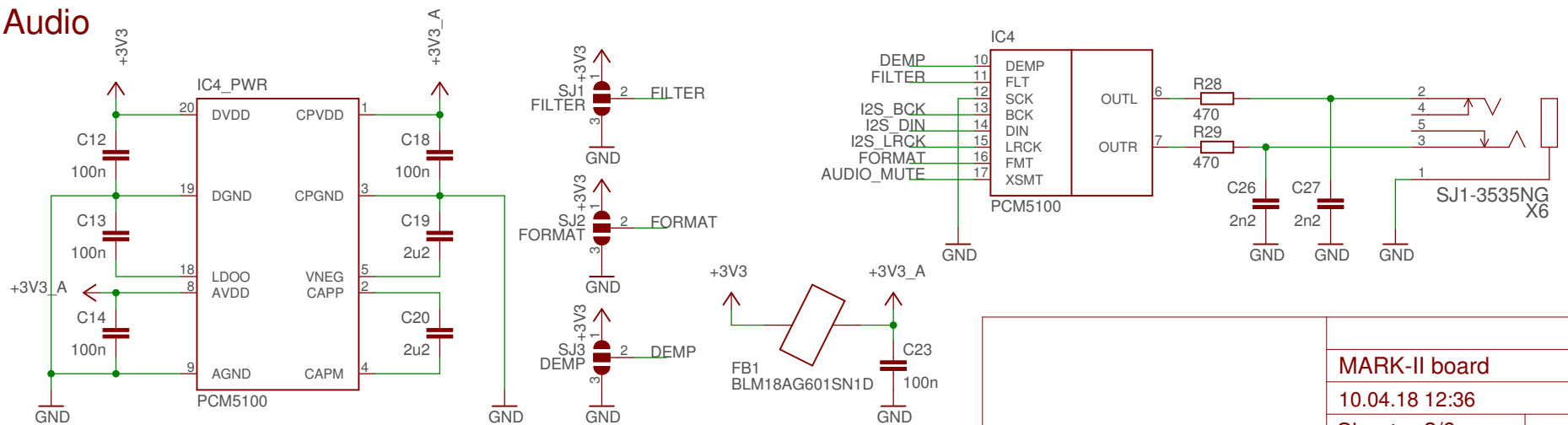
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Sheet: 1/6

Ethernet



Audio



MARK-II board

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Sheet: 2/6

SDRAM

IC5: AS4C32M8SA

SDRAM_A0_23 A0 DQ0 2 SDRAM_DQ0
 SDRAM_A1_24 A1 DQ1 5 SDRAM_DQ1
 SDRAM_A2_25 A2 DQ2 8 SDRAM_DQ2
 SDRAM_A3_26 A3 DQ3 11 SDRAM_DQ3
 SDRAM_A4_29 A4 DQ4 44 SDRAM_DQ4
 SDRAM_A5_30 A5 DQ5 47 SDRAM_DQ5
 SDRAM_A6_31 A6 DQ6 50 SDRAM_DQ6
 SDRAM_A7_32 A7 DQ7 53 SDRAM_DQ7
 SDRAM_A8_33 A8
 SDRAM_A9_34 A9
 SDRAM_A10_22 A10
 SDRAM_A11_35 A11
 SDRAM_A12_36 A12
 SDRAM_CLK_38 CLK
 +3V3 37 CKE
 SDRAM_BA0_20 BA0
 SDRAM_BA1_21 BA1
 SDRAM_RAS_19 CS#
 SDRAM_CAS_18 RAS#
 SDRAM_WE_17 CAS#
 WE#
 DQM 39
 GND

IC5_PWR: AS4C32M8SA

VDD 1 14 27 3 9 43 49
 VDDQ
 VSS 28 41 54 6 12 46 52
 VSSQ
 GND

C28 100n
 C29 100n
 C30 100n
 C31 100n
 C32 100n
 C33 100n
 C34 100n
 GND

FRAM, RTC

IC6: MCP7940NSN

VBAT X8
 BAT-HLD-002-SMT
 GND
 VCC 8
 VBAT 3
 VSS 4
 X1 1
 X2 2
 SCL 6
 SDA 5
 RTC_MFP 7

Q2 32.768kHz
 C35 12p
 C36 12p
 GND

IC7: FM24CL16BG

VCC 8
 SCL 6
 SDA 5
 WP 7
 VSS 4
 +3V3 1
 GND 3
 +3V3 2
 GND 4

SJ4 WP
 C39 100n
 C40 100n
 GND
 +3V3
 R33 4k7
 R34 4k7
 SCL
 SDA

microSD

X7: MICROSD-HRS_DM3D

DAT1
 DAT0
 CLK
 VDD
 GND
 CMD
 CD/DAT3
 DAT2
 GND1
 GND2
 GND3
 GND4
 SW_A
 SW_B

SD_DAT1
 SD_DAT0
 SD_CLK
 SD_CMD
 SD_DAT3
 SD_DAT2
 +3V3_SB
 SD_SW
 R32 10k
 GND

C37 100n
 GND

FLASH

IC8: AT25DN256SS

VCC 8
 #CS 6
 SCK 7
 SO 2
 SI 5
 #HOLD 3
 #WP 4
 GND
 +3V3 1
 GND 3
 +3V3 2
 GND 4

SJ5 WP
 C38 100n
 GND

MARK-II board
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SDRAM

IC5: AS4C32M8SA

SDRAM_A0_23 A0 DQ0 2 SDRAM_DQ0
 SDRAM_A1_24 A1 DQ1 5 SDRAM_DQ1
 SDRAM_A2_25 A2 DQ2 8 SDRAM_DQ2
 SDRAM_A3_26 A3 DQ3 11 SDRAM_DQ3
 SDRAM_A4_29 A4 DQ4 44 SDRAM_DQ4
 SDRAM_A5_30 A5 DQ5 47 SDRAM_DQ5
 SDRAM_A6_31 A6 DQ6 50 SDRAM_DQ6
 SDRAM_A7_32 A7 DQ7 53 SDRAM_DQ7
 SDRAM_A8_33 A8
 SDRAM_A9_34 A9
 SDRAM_A10_22 A10
 SDRAM_A11_35 A11
 SDRAM_A12_36 A12
 SDRAM_CLK_38 CLK
 +3V3 37 CKE
 SDRAM_BA0_20 BA0
 SDRAM_BA1_21 BA1
 SDRAM_RAS_19 CS#
 SDRAM_CAS_18 RAS#
 SDRAM_WE_17 CAS#
 WE#
 DQM 39
 GND

IC5_PWR: AS4C32M8SA

VDD 1 14 27 3 9 43 49
 VDDQ
 VSS 28 41 54 6 12 46 52
 VSSQ
 GND

C28 100n
 C29 100n
 C30 100n
 C31 100n
 C32 100n
 C33 100n
 C34 100n
 GND

FRAM, RTC

IC6: MCP7940NSN

VBAT X8
 BAT-HLD-002-SMT
 GND
 VCC 8
 VBAT 3
 VSS 4
 X1 1
 X2 2
 SCL 6
 SDA 5
 RTC_MFP 7

Q2 32.768kHz
 C35 12p
 C36 12p
 GND

IC7: FM24CL16BG

VCC 8
 SCL 6
 SDA 5
 WP 7
 VSS 4
 +3V3 1
 GND 3
 +3V3 2
 GND 4

SJ4 WP
 C39 100n
 C40 100n
 GND
 +3V3
 R33 4k7
 R34 4k7
 SCL
 SDA

microSD

X7: MICROSD-HRS_DM3D

DAT1
 DAT0
 CLK
 VDD
 GND
 CMD
 CD/DAT3
 DAT2
 GND1
 GND2
 GND3
 GND4
 SW_A
 SW_B

SD_DAT1
 SD_DAT0
 SD_CLK
 SD_CMD
 SD_DAT3
 SD_DAT2
 +3V3_SB
 SD_SW
 R32 10k
 GND

C37 100n
 GND

FLASH

IC8: AT25DN256SS

VCC 8
 #CS 6
 SCK 7
 SO 2
 SI 5
 #HOLD 3
 #WP 4
 GND
 +3V3 1
 GND 3
 +3V3 2
 GND 4

SJ5 WP
 C38 100n
 GND

MARK-II board
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 Sheet: 3/6

SDRAM

IC5: AS4C32M8SA

SDRAM_A0_23 A0 DQ0 2 SDRAM_DQ0
 SDRAM_A1_24 A1 DQ1 5 SDRAM_DQ1
 SDRAM_A2_25 A2 DQ2 8 SDRAM_DQ2
 SDRAM_A3_26 A3 DQ3 11 SDRAM_DQ3
 SDRAM_A4_29 A4 DQ4 44 SDRAM_DQ4
 SDRAM_A5_30 A5 DQ5 47 SDRAM_DQ5
 SDRAM_A6_31 A6 DQ6 50 SDRAM_DQ6
 SDRAM_A7_32 A7 DQ7 53 SDRAM_DQ7
 SDRAM_A8_33 A8
 SDRAM_A9_34 A9
 SDRAM_A10_22 A10
 SDRAM_A11_35 A11
 SDRAM_A12_36 A12
 SDRAM_CLK_38 CLK
 +3V3 37 CKE
 SDRAM_BA0_20 BA0
 SDRAM_BA1_21 BA1
 SDRAM_RAS_19 CS#
 SDRAM_CAS_18 RAS#
 SDRAM_WE_17 CAS#
 WE#
 DQM 39
 GND

IC5_PWR: AS4C32M8SA

VDD 1 14 27 3 9 43 49
 VDDQ
 VSS 28 41 54 6 12 46 52
 VSSQ
 GND

C28 100n
 C29 100n
 C30 100n
 C31 100n
 C32 100n
 C33 100n
 C34 100n
 GND

FRAM, RTC

IC6: MCP7940NSN

VBAT X8
 BAT-HLD-002-SMT
 GND
 VCC 8
 VBAT 3
 VSS 4
 X1 1
 X2 2
 SCL 6
 SDA 5
 MFP 7
 RTC_MFP

Q2: 32.768kHz
 C35 12p
 C36 12p
 GND

IC7: FM24CL16BG

VCC 8
 SCL 6
 SDA 5
 WP 7
 VSS 4
 SCL 6
 SDA 5
 R33 4k7
 R34 4k7

SJ4 WP 1 2 3
 +3V3
 GND

C39 100n
 C40 100n
 GND

microSD

X7: MICROSD-HRS_DM3D

DAT1
 DAT0
 CLK
 VDD
 GND
 CMD
 CD/DAT3
 DAT2
 GND1
 GND2
 GND3
 GND4
 SW_A
 SW_B

SD_DAT1
 SD_DAT0
 SD_CLK
 SD_CMD
 SD_DAT3
 SD_DAT2
 +3V3_SB
 SD_SW
 R32 10k
 GND

C37 100n
 GND

FLASH

IC8: AT25DN256SS

VCC 8
 #CS 6
 SCK 7
 SO 2
 SI 5
 #HOLD 3
 #WP 4
 GND
 FLASH_CS 1
 FLASH_SCK 6
 FLASH_SO 2
 FLASH_SI 5

SJ5 WP 1 2 3
 +3V3
 GND

C38 100n
 GND

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SDRAM

IC5: AS4C32M8SA

SDRAM_A0_23 A0 DQ0 2 SDRAM_DQ0
 SDRAM_A1_24 A1 DQ1 5 SDRAM_DQ1
 SDRAM_A2_25 A2 DQ2 8 SDRAM_DQ2
 SDRAM_A3_26 A3 DQ3 11 SDRAM_DQ3
 SDRAM_A4_29 A4 DQ4 44 SDRAM_DQ4
 SDRAM_A5_30 A5 DQ5 47 SDRAM_DQ5
 SDRAM_A6_31 A6 DQ6 50 SDRAM_DQ6
 SDRAM_A7_32 A7 DQ7 53 SDRAM_DQ7
 SDRAM_A8_33 A8
 SDRAM_A9_34 A9
 SDRAM_A10_22 A10
 SDRAM_A11_35 A11
 SDRAM_A12_36 A12
 SDRAM_CLK_38 CLK
 +3V3 37 CKE
 SDRAM_BA0_20 BA0
 SDRAM_BA1_21 BA1
 SDRAM_RAS_19 CS#
 SDRAM_CAS_18 RAS#
 SDRAM_WE_17 CAS#
 WE#
 DQM 39
 GND

IC5_PWR: AS4C32M8SA

VDD 1 14 27 3 9 43 49
 VDDQ
 VSS 28 41 54 6 12 46 52
 VSSQ
 GND

C28 100n
 C29 100n
 C30 100n
 C31 100n
 C32 100n
 C33 100n
 C34 100n
 GND

FRAM, RTC

IC6: MCP7940NSN

VBAT X8
 BAT-HLD-002-SMT
 GND
 VCC 8
 VBAT 3
 VSS 4
 X1 1
 X2 2
 SCL 6
 SDA 5
 MFP 7
 RTC_MFP

Q2: 32.768kHz
 C35 12p
 C36 12p
 GND

IC7: FM24CL16BG

VCC 8
 SCL 6
 SDA 5
 WP 7
 VSS 4
 SCL 6
 SDA 5
 R33 4k7
 R34 4k7

SJ4 WP 1 2 3
 +3V3
 GND

C39 100n
 C40 100n
 GND

microSD

X7: MICROSD-HRS_DM3D

DAT1
 DAT0
 CLK
 VDD
 GND
 CMD
 CD/DAT3
 DAT2
 GND1
 GND2
 GND3
 GND4
 SW_A
 SW_B

SD_DAT1
 SD_DAT0
 SD_CLK
 SD_CMD
 SD_DAT3
 SD_DAT2
 +3V3_SB
 SD_SW
 R32 10k
 GND

C37 100n
 GND

FLASH

IC8: AT25DN256SS

VCC 8
 #CS 6
 SCK 7
 SO 2
 SI 5
 #HOLD 3
 #WP 4
 GND
 FLASH_CS 1
 FLASH_SCK 6
 FLASH_SO 2
 FLASH_SI 5

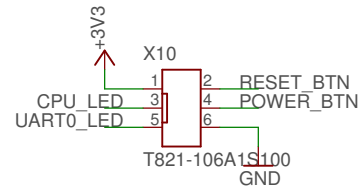
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 +3V3
 GND

C38 100n
 GND

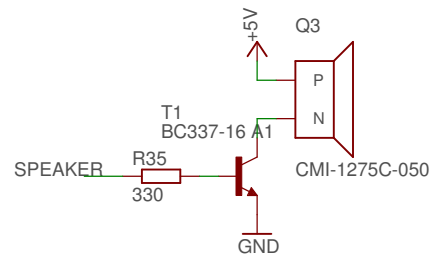
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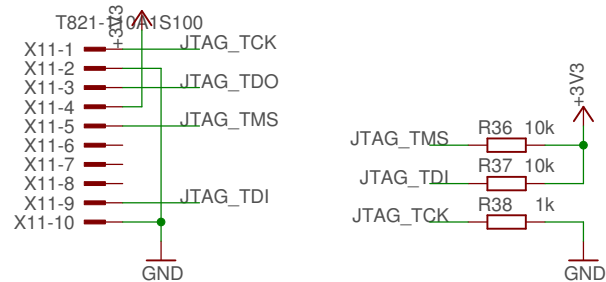
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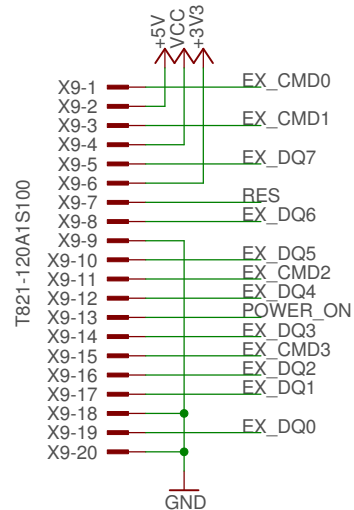
Speaker



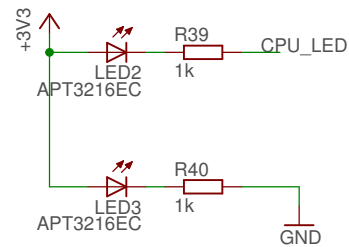
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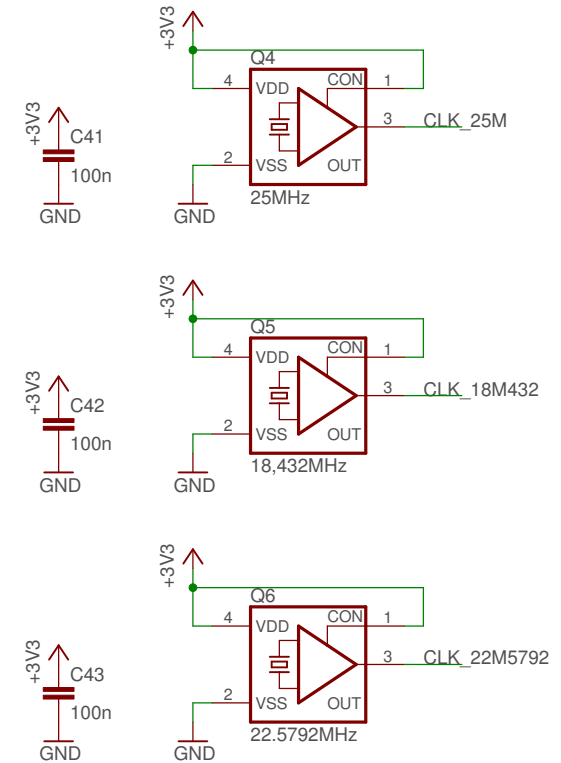
Expansion



Status LED



Oscillators



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FPGA

SDA_6 PIN6 PIN11 11 I2S_DIN
 SCL_7 PIN7 PIN12 12 I2S_LRCK
 RTC_MFP_8 PIN8 PIN13 13 FLASH_CS
 I2S_BCK_10 PIN10 PIN14 14 FLASH_SO
 FLASH_SI_15 PIN15 PIN20 20 JTAG_TDO
 JTAG_TMS_16 PIN16 PIN21 21 ENC_CS
 FLASH_SCK_17 PIN17 PIN22 22 ENC_SCK
 JTAG_TCK_18 PIN18 PIN24 24 ENC_SI
 JTAG_TDI_19 PIN19 PIN25 25 ENC_SO

IC9_BANK1
 10M25SAE144

CLK_25M_26 PIN26 PIN30 30 SDRAM_DQ5
 ENC_INT_27 PIN27 PIN31 32 SDRAM_DQ4
 SDRAM_DQ7_28 PIN28 PIN33 33 SDRAM_CLK
 SDRAM_DQ6_29 PIN29

IC9_BANK2
 10M25SAE144

SDRAM_A12_38 PIN38 PIN50 50 SDRAM_DQ1
 SDRAM_A11_39 PIN39 PIN52 52 SDRAM_DQ2
 SDRAM_A9_41 PIN41 PIN54 54 SDRAM_DQ3
 SDRAM_A8_43 PIN43 PIN55 55 SDRAM_WE
 SDRAM_A7_44 PIN44 PIN56 56 SDRAM_CAS
 SDRAM_A6_45 PIN45 PIN57 57 SDRAM_RAS
 SDRAM_A5_46 PIN46 PIN58 58 SDRAM_BA0
 SDRAM_A4_47 PIN47 PIN59 59 SDRAM_BA1
 SDRAM_DQ0_48 PIN48 PIN60 60 SDRAM_A10

IC9_BANK3
 10M25SAE144

SDRAM_A0_61 PIN61 PIN66 66 SD_DAT2
 SDRAM_A1_62 PIN62 PIN69 69 SD_DAT3
 SDRAM_A2_64 PIN64 PIN70 70 SD_CMD
 SDRAM_A3_65 PIN65

IC9_BANK4
 10M25SAE144

SD_CLK_74 PIN74 PIN80 80 UART0_TXD
 SD_DAT0_75 PIN75 PIN81 81 UART0_RXD
 SD_DAT1_76 PIN76 PIN84 84 EX_DQ0
 RES_77 PIN77 PIN85 85 EX_DQ1
 UART0_CBUS0_78 PIN78 PIN86 86 EX_DQ2
 UART0_CBUS1_79 PIN79 PIN87 87 EX_CMD3

IC9_BANK5
 10M25SAE144

EX_DQ3_88 PIN88 PIN98 98 EX_CMD1
 EX_DQ4_89 PIN89 PIN99 99 EX_CMD0
 CLK_22M5792_90 PIN90 PIN100 100 PWRMNG_RES
 CLK_18M432_91 PIN91 PIN101 101 PWRMNG_RX
 EX_CMD2_92 PIN92 PIN102 102 PWRMNG_TX
 EX_DQ5_93 PIN93 PIN105 105 VGA_B1
 EX_DQ6_96 PIN96 PIN106 106 VGA_B0
 EX_DQ7_97 PIN97

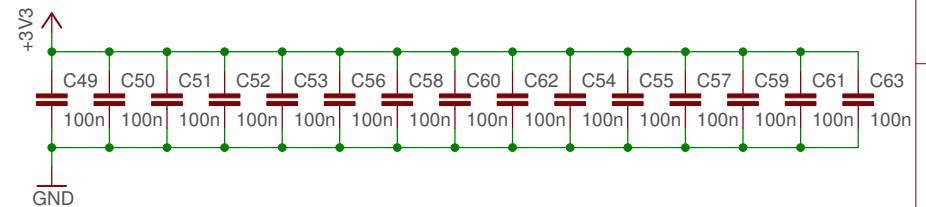
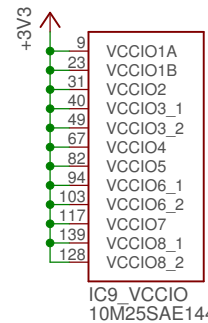
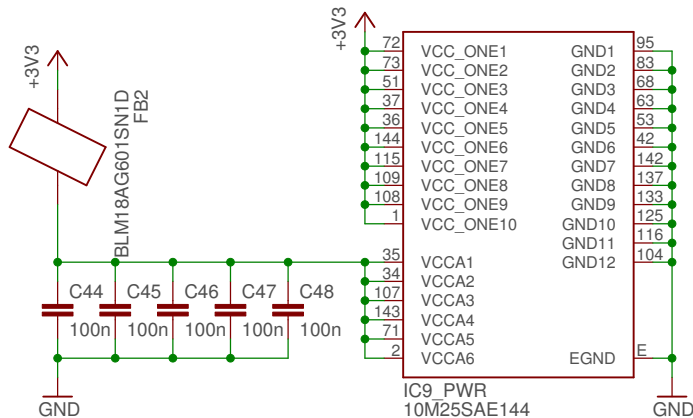
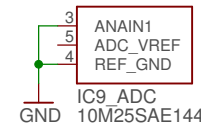
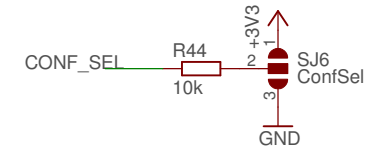
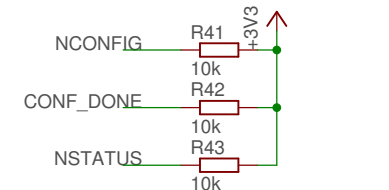
IC9_BANK6
 10M25SAE144

VGA_G2_110 PIN110 PIN114 114 VGA_R1
 VGA_G1_111 PIN111 PIN118 118 VGA_R0
 VGA_G0_112 PIN112 PIN119 119 VGA_VS
 VGA_B2_113 PIN113

IC9_BANK7
 10M25SAE144

VGA_HS_120 PIN120 PIN131 131 UART1_RXD
 MS_CLK_121 PIN121 PIN132 132 UART1_CTS
 MS_DAT_122 PIN122 PIN134 134 UART1_RI
 KB_DAT_123 PIN123 PIN135 135 UART1_DTR
 KB_CLK_124 PIN124 PIN136 136 NSTATUS
 CONF_SEL_126 PIN126 PIN138 138 CONF_DONE
 UART1_DGD_127 PIN127 PIN140 140 UART1_TXD
 NCONFIG_129 PIN129 PIN141 141 UART1_RTS
 UART1_DSR_130 PIN130

IC9_BANK8
 10M25SAE144

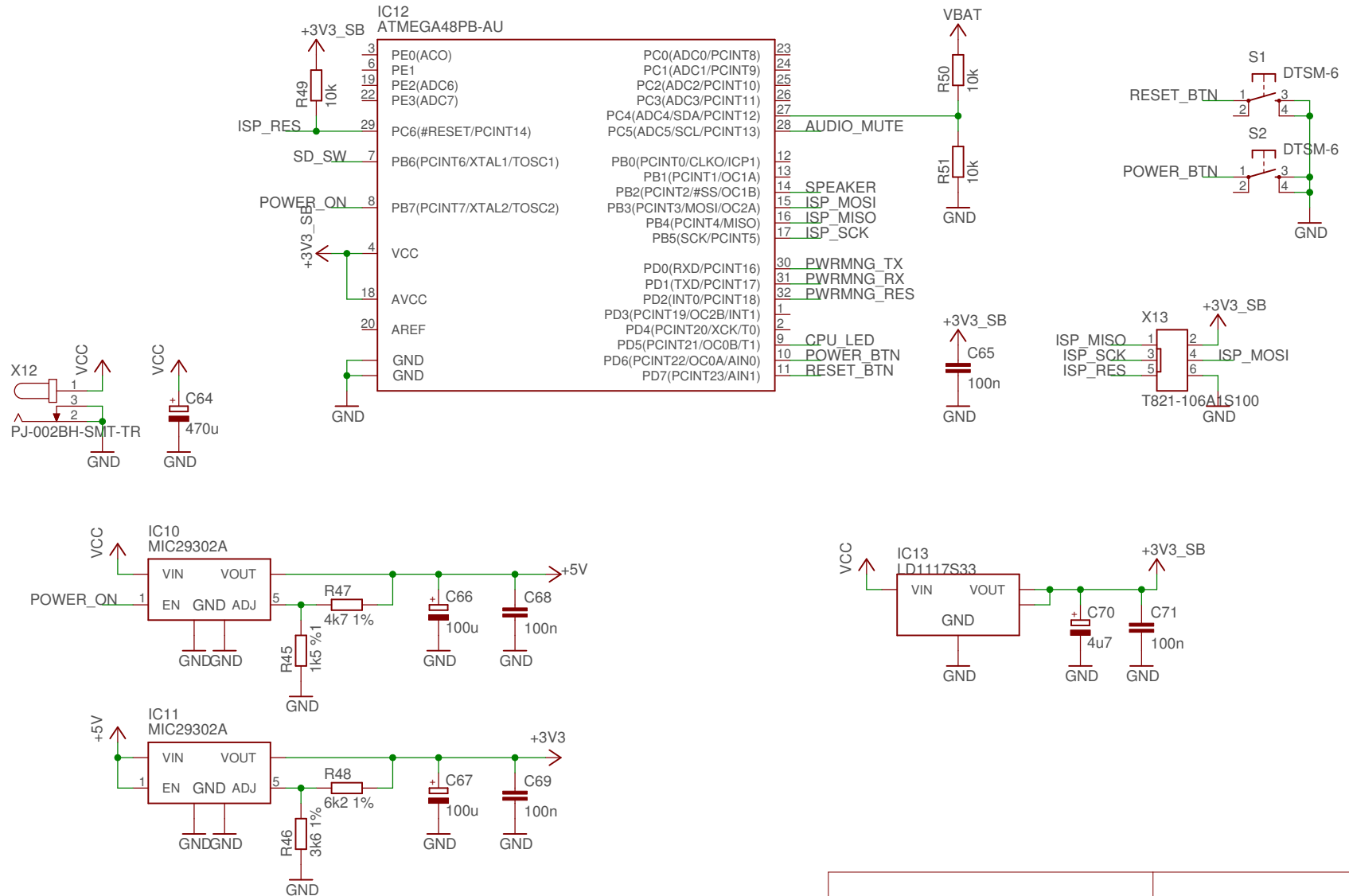


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Power



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